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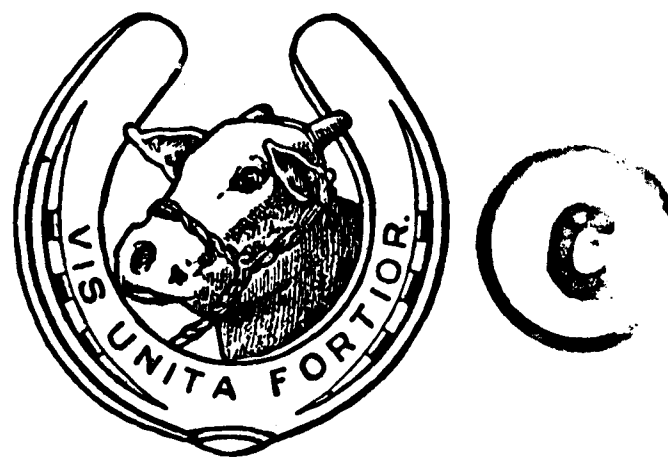
Vol. 36, No. 10

OCTOBER, 1959

THE INDIAN VETERINARY JOURNAL

(The Journal of the All-India Veterinary Association)

*A Monthly Record of
Veterinary Science*



(ESTD. 1924)

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EDITOR

Rao Sahib T. VINAYAKA MUDALIAR, G.M.V.C.,

Office:—23, First Street, Vidyodaya East, T'Nagar,
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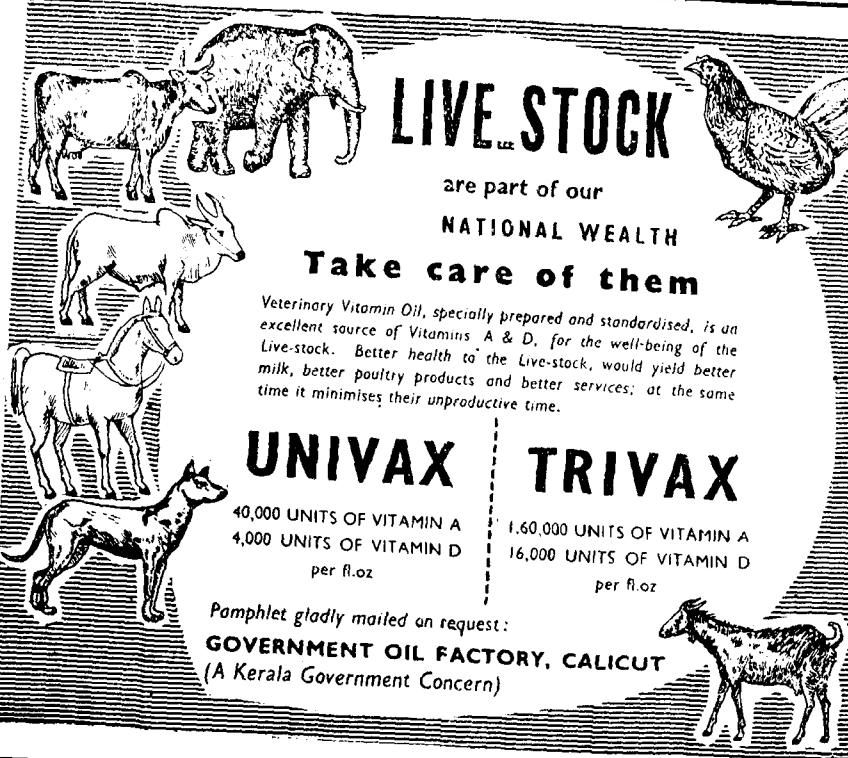
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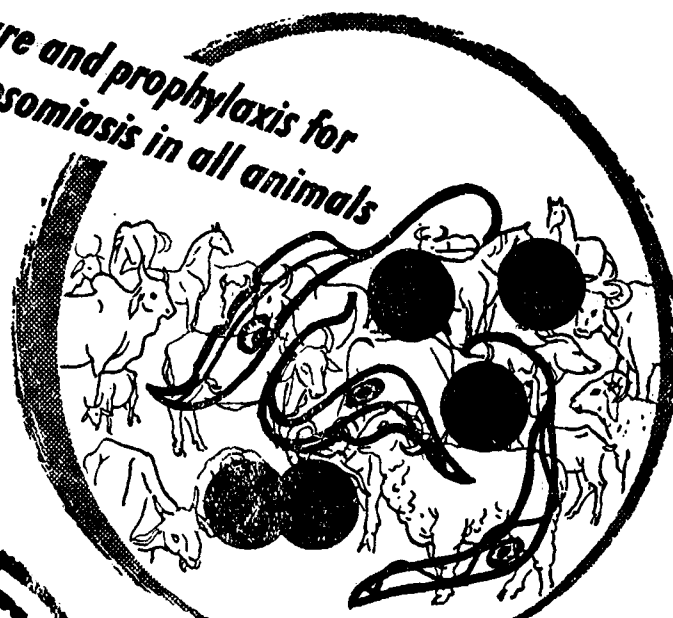
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Vol. 36

OCTOBER, 1959

No. 10

Editorial

ANOTHER INDO-AMERICAN TEAM!

The air is thick with the rumour that this unfortunate country is to be graced once again with a visit of a second Indo-American team of experts on Agricultural education! We do not know how these periodical visits are found necessary by either the Indian Council of Agricultural Research or the Central Government. We thrashed this question thread-bare editorially in July 1956. We repeat that this constant attempt to interfere with the existing pattern of agricultural education will only undermine the well-established rural economy of this sub-continent. We fail to understand the need for such visits. Did the profession or the public ask for it? Were the Directors of States and Principals of Colleges consulted in the matter?

We questioned before and we repeat it again, what is wrong with our present system of organisation, education and execution? All these have been perfected after a good deal of thought, experimentation and local experience to suit the genius of the people and the culture of this ancient land. We have no quarrel with foreign experts. They may be good in their own way, but we say that they cannot be of very great help to us with their lack of knowledge of conditions in this land. What surprises most is that there are men in our own country who believe, for reasons best known to themselves, that such visits of foreign experts and their advice are going to benefit us immensely.

We have written enough and more on this subject before and we are not inclined to keep on repeating our warnings from time to time. Mr. J. B. Polding, in his article on "Veterinary Education in North America" in the *Veterinary Record* of London dated 7th and 14th of April 1956 makes the following un-varnished statement for the benefit of those who care to stop and think. "Thus American

aid in the Veterinary field, however well meaning and however generous, may well have the unintentional effect of imposing on many areas, an American pattern entirely unsuited to the political and economic set-up of the recipient country, and bias the further development of its Veterinary profession in a way which may ultimately be detrimental".

It has been the misfortune of this country to have suffered long under foreign domination with nothing like any form of development in any field of her activities, and now after twelve years of Independence, when India has been struggling hard to make up for the lost time and when she is well poised for excellent work, she is being disturbed and distracted with all kinds of advice. She is advised to adopt an absolutely foreign pattern of education and expansion unmindful of the naked poverty that stalks this land. She is not allowed to settle down to quiet work. Let people study carefully the immense progress made within these twelve years of Independence. There is danger in disturbing the existing pattern of education and work and those who persist in playing with that pattern light heartedly will have to hold themselves responsible for the serious consequences that are bound to follow. We feel we have done our duty in sufficiently warning them in advance. We have done so from 1956 onwards and we only hope the Government of India and the Indian Council of Agricultural Research will see through the reasonableness of our appeal.

BENGAL'S HOUR OF TRIUMPH

It was only in May 1958 that we drew the attention of the Government of West Bengal editorially how grievously the Livestock development work in that State lagged behind similar work in the other States of India. We pointed out "that it is no good of making the Animal Husbandry work, a part-time job of an allied Department. With hands too full with their own problems, the Animal Husbandry work assumes a secondary place in their hands, and nothing can be more harmful to the development of cattle wealth of the land". We knew that it may not take long for the enlightened Government of West Bengal to realise the soundness of our appeal. Since then, strenuous efforts were being made in that State both for and against the transfer of the Livestock work entirely to the Animal Husbandry

Department. We are extremely happy to announce that West Bengal has now fallen in line with the other States in this matter.

We gather this information from the "*Alumni Bulletin*" (October 1959) of the Bengal Veterinary College. It can now be claimed that West Bengal is well set for progressive work in the matter of the Livestock wealth of that State. It is for our profession in West Bengal to rise equal to the occasion and prove to the world at large that it was not without reason that the Veterinary profession has been pleading for the transfer of the Livestock work into their hands. Years of hard work lie behind this achievement. We consider it as the hour of triumph of West Bengal. We do not know whom to congratulate on this achievement. We certainly feel that but for the wise and statesmanlike decision of the Government of West Bengal this transfer could not have been effected. We offer our heartfelt thanks to the Government of West Bengal on behalf of the entire profession in India. We know how much we owe to the Hon'ble Minister for Agriculture, Animal Husbandry and Forests, Dr. R. Ahmed, who has been highly considerate from the very beginning and always handled this ticklish question with a spirit of understanding. All honour to him!

One word of caution may perhaps be not out of place in this connection. It should be remembered that responsibilities flow from rights claimed. There is no good of merely feeling jubilant at this hour of triumph. The profession should realise that it has now been saddled with additional responsibility and as such it should try to equip itself fully and well for the work that lies ahead.

It is fortunate that the All-India Veterinary Conference is to meet in Calcutta in December 1959. The atmosphere is bound to be surcharged with 'great expectations'. The profession, we are sure, will rally round Bengal at this hour of her triumph and make this Conference a great success. On to Calcutta, then!

To Our Subscribers

1. Please pay up your arrears, if any, before the year closes.
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-

In Memorium

Dr. G. OSMAN KHAN PASSES AWAY

We deeply regret to record the sad and sudden demise of Al-Haj. Dr. G. Osman Khan, G.M.V.C., P.G. (Edin.), Retired Veterinary Officer, Malaya in the morning of Saturday, the 10th October, 1959 at Alandur, a suburb of Madras, where he had settled down after retirement. He had a heart attack and the end was sudden.

He was a member of the Veterinary Council of the All-India Veterinary Association and also of the Managing Committee of the Madras Veterinary Association and took a live interest in their activities. He was also President of the Madras Veterinary Association for one term and as such served on the Interim Indian Veterinary Council and the State Livestock Improvement Board.

He was a Honorary Veterinary Surgeon to the Madras Kennel Club and was a prominent contributor to its periodical *The Madras Kennel Club News*. He took an active part in the International Fellowship Meetings and was Justice of the Peace. He was of very pious disposition and was every inch a gentleman.

On receipt of the news, both the Director of Animal Husbandry, Madras, Dr. D. Pattabiraman and the Editor of this *Journal*, called at his residence and laid wreaths on behalf of the Veterinary profession in Madras and the All-India Veterinary Association and the Madras Veterinary Association.

We offer our condolences to the members of the bereaved family. May his soul rest in peace!



DR. G. OSMAN KHAN

who has passed away on 10-10-59

(See In Memorium)

Carcinoma of the Rumen in a Cow

By
S. DAMODARAN



Fig. 1
Neoplasm on the mucous
surface of the rumen.



Fig. 2
Note infiltrations of neoplastic cells
(A) in the sub-mucous connective tissue
(B) and absence of epithelial lining on the
ruminal papilla (C) and sub-mucous
connective tissue (H. E. $\times 100$).

[To face Page 490]

An Unusual Location of a Capillarid Worm in the Domestic Fowl

By
J. V. NARAYANA AND B. V. RAO



Capillarid worm in the larynx of a fowl.

[To face Page 492]

General Articles

SYSTEMATIC CONTROL AND ERADICATION OF
TUBERCULOSIS AMONG CATTLE AND BUFFALOES IN
SELF-CONTAINED HERDS*

By

M. R. DHANDA and J. M. LALL,

Indian Veterinary Research Institute, Mukteswar-Kumaon, U. P.

As a result of extensive investigations carried out on Tuberculosis in animals during the last two decades or so, our concept about the prevalence of this disease among animals in India has got re-orientated. Prior to these studies, it was commonly believed that Tuberculosis in animals was a very rare disease in India so much so that, till the year 1917, mention of a case of Tuberculosis was seldom made in any of the annual reports of the Veterinary Departments of the States. This led the workers on Tuberculosis to advance several hypotheses to explain the causes of this relative infrequency, e.g (a) natural resistance among indigenous cattle; (b) low virulence of strains of Tubercle bacilli isolated from indigenous cattle as compared to those responsible for tuberculosis in European countries; (c) open air conditions under which the animals are generally kept in India. However, the Tuberculin tests carried out on animals in the cities of Lahore and Ahmedabad, and the adjoining villages have clearly shown that the incidence of reactors in certain areas of our country is as high as in some of the worst-affected European countries.

TABLE I

Showing the results of Tuberculin tests in the city of Lahore and Ahmedabad and the adjoining villages

Name of the place	Year of test	Cattle			Buffaloes		
		No. tested	No. of positive reactors	Percentage of positive reactors	No. tested	No. of positive reactors	Percentage of positive reactors
City of Lahore and the area within a radius of about 12 miles ...	1946-47	6521	1061	16.3	5558	1404	25.3
City of Ahmedabad and the area within a radius of about 16 miles ...	1947-48	3550	431	12.1	21592	3761	17.4

Note :—The survey was carried out under the aegis of the Indian Council of Agricultural Research.

* The paper was presented at the Eighth Conference of Disease Investigation Officers and Veterinary Research Workers—1959.

Tuberculin tests carried out on a number of cattle farms in our country have shown that the percentage of infection varies from herd to herd so much so that whereas certain herds are absolutely clean, there are others with such a high incidence that the only feasible remedy in their case appears to be to scrap them and make a fresh start with healthy animals. The Tuberculin tests conducted on the municipal bullocks at Puri (1937-42) amply demonstrated that even under Indian conditions, once the tuberculous infection gained access into a herd and its spread was not checked by carrying out repeated Tuberculin tests and eliminating the positive animals, the disease might cause such a havoc that the whole herd might have to be destroyed.

TABLE II

*Showing the progress of Tuberculosis among the
Municipal bullocks at Puri*

1st test January- February, 1937			2nd test December, 1938			3rd test November, 1941			4th test August, 1942		
No. tested	No. reac- ted	% reacted	No. tested	No. reac- ted	% reacted	No. tested	No. reac- ted	% reacted	No. tested	No. reac- ted	% reacted
88	8	9.09	96	14	14.58	68	34	50.00	59	50	84.74

Similarly, the history of the disease at the Government Cattle Farm, Hissar, where in 1940 as many as 20.22 per cent of animals gave a positive reaction to Tuberculin again demonstrated that if once the infection got its foot-hold in a herd, it could cause huge economic losses. In this connection, it may, however, be pointed out that it has been the experience of several workers that generally at post-mortem examination one encounters in indigenous cattle much less severe lesions of the disease as compared to the animals in the Western Countries. It is certain that it is not due to a low virulence of Tubercle bacilli, as the work of Soparker (1925) and Sahai & Dhanda (1941-42) has conclusively shown that there is no significant difference in the virulence between the strains of Tubercle bacilli from cattle and buffaloes in India and those isolated in England. However, at the present stage of our knowledge, it seems difficult to give any clear-cut explanation as to why the indigenous cattle generally show non-progressive type of lesions, although it is probable that the open air conditions under which our animals are generally kept and the plenty of sunshine available to them for most part of the year have got some bearing on it. Further, it is likely that the indigenous breeds of cattle possess some natural resistance, which, however, is not of an order

which will prevent the disease from getting established, if the animals get exposed to an average dose of infection. However, with the enormous pressure of the fast increasing human population, more and more of pasture lands are being brought under cultivation for growing cereals and other cash crops, and more and more land is being reclaimed for building houses, factories etc. Further, the livestock industry is being rapidly developed to meet the economic needs of the country and to supply milk and milk products for the nation. All these factors are resulting in closer herding of animals and confinement for longer hours in the byres. Thus, chances for the spread of tuberculosis in animals are increasing and it can be visualised that unless timely steps are taken to eradicate the disease from the domestic animals, it may assume such a serious proportion that not only it may endanger the human health but also jeopardize the developing livestock industry of our country and seriously affect the agricultural operations. In order to guard against such a grave eventuality, it is absolutely essential that immediate steps should be taken to launch a country-wide campaign for eradication of the disease from animals.

Finland was probably the first country to launch a successful campaign against Tuberculosis in cattle which was started as back as the year 1899. The second successful attempt was made in Guernsey where the work was begun in the year 1906, but the eradication campaign, which attracted the greatest attention, was that launched in the U. S. A., where from the period 1917 to 1940 as many as 230 million Tuberculin tests were performed and 3,768,201 reactors were detected. In 1952, the number of reactors was barely 0.11 per cent. Denmark, too, has successfully eliminated Tuberculosis from its cattle, and vigorous eradication campaigns are now going on in several countries like the Great Britain, Holland, Australia, Norway, Czechoslovakia. In Russia, the incidence had been brought down to as low as 0.2 per cent in the collective farms and 0.97 per cent in the State farms by the year 1945.

In several countries, the official schemes for eradication of Tuberculosis from animals were based on the 'test and slaughter' policy. Such a plan is, however, considered impracticable for our country since the percentage of Tuberculin positive animals in certain areas is fairly high and their destruction will result in a considerable reduction in the number of working bullocks and milch animals and that will have a very grave repercussion on the economy of a predominantly agricultural country like our's, where bullocks are the main motive power for agricultural operations and shortage of food to meet the needs of the fast-increasing human population has already become a major national problem. Furthermore, a large percentage of Tuberculin positive animals under the Indian conditions do not generally develop a progressive type of the disease for years together. As such,

the whole-sale destruction of reactors appears to be a wasteful procedure. It is, therefore, suggested that the eradication plan of our country should aim at building clean herds, and later clean areas, by following a 'test and segregation' policy with destruction of clinical cases. Such a scheme will cause comparatively much less interference in the agricultural economy and the normal progress of the animal industry, although it will take considerably longer time to achieve the objective of eradicating Tuberculosis from the country. On the other hand, the 'test and slaughter' policy is a more sure, an easy and a quick method for eradicating tuberculosis but it proves so very expensive for the State that it may not be within the reach of our country. Further, as already pointed out, it will prove wasteful since a fairly large number of reactors, which may otherwise continue to live a useful life for years together, will have to be destroyed.

Before launching a nation-wide campaign for the eradication of Tuberculosis, it seems rational to attempt elimination of infection from self-contained herds by following 'test and segregation' policy with destruction of clinical cases. The practicability of such a method of eradication under Indian farm conditions was amply demonstrated by Sahai and Dhanda (1943-44) who successfully eradicated Tuberculosis from the Government Cattle Farm, Hissar, where the incidence of positive reactors in the year 1940 was as high as 20.22 per cent and was brought down to nearly 1 per cent. by March, 1944 (Table III).

In this connection, it may, however, be pointed out that the success of an Eradication Plan based on the 'test and segregation' policy with destruction of clinical cases, depends mainly on the facilities that can be made available for the strict isolation of reactors from the healthy stock. The segregation facilities that were available at the Government Cattle Farm, Hissar, were very ideal and it will be well-nigh impossible to get similar segregation areas in most of the self-contained herds of our country. As such, it will be necessary to make provision for the establishment of 'Reactor Farms' either on a cooperative basis or at governmental level, for housing Tuberculin positive animals of all those herds which cannot arrange for proper segregation of reactors. These farms will have to be run under the charge of qualified Veterinarians, suitably trained in the Tuberculosis control work, so that clean herds may be built up in due course. Further, for the successful implementation of any eradication plan, it will be very necessary to enlist whole-hearted voluntary support of the owners of the herds and for achieving that, vigorous propaganda will have to be carried out to explain the benefits that will accrue from the eradication of tuberculosis. Some sort of financial inducement will also have to be given, say in the form of bonus to the owners of the herds who choose to come under the official scheme of Tuberculosis eradication.

TABLE III
Showing the progress of Tuberculosis eradication work among cattle at the Government Cattle Farm, Hissar.

	1st test July-Dec., 1940		2nd test Feb.-May, 1941		3rd test January, 1942		4th test June, 1942		5th test Oct.-Nov., 1942		6th test July-Aug., 1943		7th test Feb.-March 1944	
	No. tested	% reacted	No. tested	% reacted	No. tested	% reacted	No. tested	% reacted	No. tested	% reacted	No. tested	% reacted	No. tested	% reacted
Cows	2489	26.07	1834	8.28	1786	11.57	1727	12.79	1389	3.88	1531	3.72	1592	0.91
Bullocks	546	28.60	412	17.23	358	15.41	299	11.04	289	2.09	262	4.20	214	7.94
Youngstock (8 months to 3 years)	2404	12.50	2332	6.00	1877	8.45	1767	8.62	1748	2.75	1738	2.14	1602	0.24
Herd bulls	26	—	31	—	35	5.71	22	22.72	23	—	22	—	26	—
Total	5645	20.22	4609	7.87	4056	11.29	3815	8.49	3399	3.15	3543	2.96	3434	1.04

Besides, funds will have to be made available, either through a co-operative movement or some state agency, to meet the amount required for payment of compensation for those reactors, which may have to be removed from the self-contained herds, and also for all clinical cases that will have to be destroyed immediately. The details of the scheme will, however, have to be carefully worked out so that the whole process of eradication may proceed in a scientific and rational manner and there may be as little burden as possible on the economy of the country.

The use of vaccines in the eradication of Tuberculosis from bovines has not been discussed since we are not aware of any large scale campaign that might have proved successful by following vaccination as an official policy for eradication of Tuberculosis.

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THE VALUE OF PENICILLIN MYCELIUM RESIDUE AS A PROTEIN SUPPLEMENT IN GROWING RATION

By

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Previous investigations from this Division (Bose and Sen Gupta 1957; Bose and Krantikumar, 1957) have shown that the supplements of Penicillin mycelium Residue, a waste product of Penicillin Factory, at 14 to 19 per cent level in poultry rations produce significant improvement in growth and productive performances leading to considerable economy in the production of stock. The present investigation was carried out to study the value of Penicillin mycelium Residue as a protein supplement at lower levels with and without supplementation

with fish meal and Terramycin antibiotic feed supplement. A total number of 608 day-old chicks of white Leghorn breed were divided into four comparable groups of 152 each. The experiment was carried out in the brooder houses managed under semi-intensive system. The composition of the basal ration was as follows:—

Basal ration

Ground yellow maize	49 parts
Wheat bran	20 parts
Ground barley	10 parts
Ground cake	20 parts
Common salt	0.5 part
Shark liver oil (D.)	0.5 part
	100 parts

The four experimental groups received the following rations.

- Group I. 100 parts of basal ration supplemented with 10 parts of Penicillin mycelium Residue.
- Group II. 100 parts of basal ration supplemented with 5 parts of Penicillin mycelium Residue and 2.5 parts of fish meal.
- Group III. Ration of Group I supplemented with 50 g. of Terramycin antibiotic feed supplement for 100 lbs. of ration.
- Group IV. Ration of Group II supplemented with 50 g. of Terramycin antibiotic feed supplement for 100 lbs. of ration.

The chickens in all the groups received chopped succulent greens from the second week onwards at the rate of 25 per cent of the feed. Limestone grit and fresh water were fed *ad lib*. The protein content of rations was 18 per cent in each group. The average weights of the male and female chickens in each group are detailed in Table I.

TABLE I

Value of Penicillin mycelium Residue, fish meal and Terramycin in Poultry ration.

Average body weights of W.L. chickens in g.

Age in wks.	Group I P.M.R.		Group II P.M.R. & fish meal		Group III P.M.R. & terramycin		Group IV P.M.R. Fish meal & Terramycin	
	Male	Female	Male	Female	Male	Female	Male	Female
0	33	32	32	32	33	32	32	32
4	130	120	145	140	125	120	164	162
8	430	360	462	404	440	380	550	454

The results showed that Penicillin mycelium Residue at 10 per cent level (Group I) without any animal protein supplement produced moderately good growth in chickens during eight weeks experimental period. The addition of Terramycin antibiotic feed supplement (Group III) stimulated the growth of chickens by 3.8 per cent. The inclusion of Penicillin mycelium Residue and fish meal, in combination (Group II), produced 9.6 per cent increased growth over Group I. The supplementary effect of the addition of fish meal was due to better assortment of amino-acids of the proteins. The further improvement in the growth was effected in Group IV which was supplemented with Terramycin (TM-5) in addition to Penicillin mycelium Residue and fish meal. The Terramycin is a product of *Streptomyces rimosus* and in addition to the antibiotic it also contains Vitamin B₁₂ which is required for optimum response to antibiotics. The combined percentage increase in body weight of male and female chickens of Group IV over Groups I, II and III at the end of eight weeks were 27.1, 15.9 and 22.4 per cent respectively. The percentages of mortality in Groups I, II, III and IV were 20, 10, 15 and 10 respectively. The food consumption in the four experimental groups did not show any significant differences and the average food consumption per chicken up till 8 weeks was 3.3 lbs. only.

Summary

The Penicillin mycelium Residue, a waste product of the Penicillin Factory, is rich in protein and growth-promoting factors. The present investigation was carried out to study the value of Penicillin mycelium Residue as a protein supplement with and without supplementation with fish meal and Terramycin antibiotic feed supplement. The results showed that Penicillin mycelium Residue at 10 per cent level (group I) without any animal protein supplement produced moderately good growth. The addition of Terramycin antibiotic feed supplement (Group III) stimulated the growth of chickens by 3.8 per cent. The inclusion of Penicillin mycelium Residue and fish meal in combination (Group II) produced 9.6 per cent increased growth over Group I. The supplementary effect of the addition of fish meal was due to better assortment of amino-acids of the proteins. The further improvement in the growth was effected in Group IV which was supplemented with Terramycin in addition to Penicillin mycelium Residue and fish meal. The combined percentage increases in body weight of male and female chickens of Group IV over Groups I, II and III at the end of eight weeks were 27.1, 15.9 and 22.4 per cent respectively.

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A PRELIMINARY NOTE ON THE ANTHELMINTIC ACTION OF PIPERAZINE CITRATE ON THE LARGE ROUND-WORM OF POULTRY-*ASCARIDIA GALLI*, UNDER FIELD CONDITIONS

By

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According to the data collected by us, the infection with the large-round-worm, *Ascaridia galli*, on chicken farms accounts for a 20 per cent mortality among growing chickens, and lowers the egg yield to a varying degree among layers during the monsoon rains. The parasite undermines the health of young birds insidiously without giving rise to marked symptoms except pallor and emaciation. Various therapeutic agents and prophylactic control measures have been tried to eradicate the infection from the farms. The commonly used drug Phenothiazine has not been found to be efficacious, while other drugs are either toxic or involve handling of the birds, skilled labour to dose them and sometimes even fasting, which throws the layers out of production. Recent literature (Shumard and Evelethe, 1955, 1956) reveals that Piperazine citrate given at 10,000 mg. per gallon of water appeared to be 100 per cent effective against this worm. They have also proved the high anthelmintic efficacy of this drug against *A. galli*, when given between 200 and 400 mg. per gallon of drinking water. In order to test the anthelmintic efficiency of Piperazine citrate against *A. galli* under field conditions, so that it could safely be used on organized farms in India, the following preliminary work was undertaken at the Indian Veterinary Research Institute, Izatnagar.

Experimental

On an examination of the faecal samples of sixty chickens, three to four months old, from the poultry farm of the Institute during monsoon, it was observed that over 50 per cent of them were infected with this parasite. Out of the infected lot, 15 moderately infected birds were separated for trial. They were placed in a laying battery, with

arrangements for collecting their droppings, till the finish of the experiment. The egg-count index of the parasites was determined by Stoll's Egg Counting technique before and after the treatment with the drug. "ANTOBAN" of Burrows and Welcome and Co.—a veterinary preparation of Piperazine citrate was used in the experiment.

Observations and results

From the observations recorded in the Table, it may be seen that the *A. galli* egg-count index in the 15 chickens under trial varied from 1,000 to 4,800 eggs per gram of faeces before the treatment with Piperazine citrate. After determining the egg-count, the chickens were orally dosed with a tablet of Piperazine citrate each containing 250 mgs. of the drug. Within 6 to 12 hours after the treatment, mature as well as immature worms of the species (*A. galli*) were expelled in the faeces of the birds. The number of adult and immature worms passed out after the treatment was 431 and 26 respectively. The number of adult worms recovered was found to vary from 11 to 80 and that of immature worms varied from 4 to 7 in different chickens. Faecal examinations of birds after a week did not reveal the presence of eggs of *A. galli*, suggesting thereby the complete expulsion of all the adult forms. To confirm the efficacy of the drug all the chickens were sacrificed ten days after the treatment, and the intestinal contents were carefully checked for mature as well as immature worms. On examination of the intestinal contents of the birds, it was observed that all birds were free from the parasite except bird No.30, which harboured 5 adults and 2 immature worms. This bird had passed 62 adults and 4 immature worms as a result of the treatment but somehow 5 adult and 2 immature worms escaped the effect of the drug. The efficiency of the drug in this bird was, therefore 92.53 and 66.6 per cent against mature and immature worms respectively while in all the other birds it was 100 per cent effective.

Conclusions

From the preliminary experiment, it was concluded that (1) Piperazine citrate in doses of 250 mg. per bird was 98.8 and 92.8 per cent effective against mature and immature worms of the species *Ascaridia galli* respectively.

(2) It had no action on the Cestodes.

As the drug is found to be most efficacious against *Ascaridia galli*, it is recommended that it may be used to control this more important pathogenic parasite of poultry in organised poultry farms, in combination with a good sanitation programme whenever found necessary.

TABLE I
Showing the results of Piperazine Citrate treatment against *Ascaridia galli* infection in fowls.

S. No.	Chicken No.	Worm egg-count before treatment per gm. of faeces	No. of <i>A. galli</i> recovered after treatment with 250 mg. piperazine citrate		Total No. of worms recovered		Worm egg count after treatment	Worms (re-treated after found on slaughter)		Immature worms	Total	Percentage efficiency of the drug on <i>A. galli</i>		Cestode infection present on slaughter	Remarks
			Male	Female	Mature	Immature		Female	Male			Mature	Immature		
1	356	4,800	20	36	56	4	Nil	2	3	2	7	100%	100%	+	Drug is ineffective against cestode infection
2	30	3,000	22	40	62	4	"	"	"	"	"	92.53%	66.6%	+	
3	2543	3,500	28	52	80	5	"	"	"	"	"	100%	100%	+	
4	5451	3,400	13	18	31	5	"	"	"	"	"	100%	100%	+	
5	8848	1,600	5	8	13	—	"	"	"	"	"	100%	100%	+	
6	2556	1,500	7	12	19	—	"	"	"	"	"	100%	100%	+	
7	102	1,400	6	11	17	—	"	"	"	"	"	100%	100%	+	
8	2521	1,200	8	6	14	6	"	"	"	"	"	100%	100%	+	
9	110	2,450	9	15	24	—	"	"	"	"	"	100%	100%	+	
10	1168	1,100	5	6	11	—	"	"	"	"	"	100%	100%	+	
11	1174	1,100	10	8	13	4	"	"	"	"	"	100%	100%	+	
12	211	2,200	5	16	21	—	"	"	"	"	"	100%	100%	+	
13	506	1,300	8	14	22	—	"	"	"	"	"	100%	100%	+	
14	507	2,300	6	20	26	7	"	"	"	"	"	100%	100%	+	
15	508	1,600	5	12	17	—	"	"	"	"	"	100%	100%	+	
			157	274	431	26	—	2	3	2	7	98.8%	92.8%		

Acknowledgment

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GASTRO-ENTERITIS IN DOGS*

By

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Introduction

This article is published not with a view to bring out any new discoveries or line of treatment but to draw the attention of our professional brethren to the fact that cases can be more effectively treated if we diagnose the complaints not only by mere symptoms based on history of the case, but also by a careful study of the details regarding housing, feeding and management of pet animals, in addition.

In part I of this paper, a review of the cases treated in the Small Animal Clinic of the Madras Veterinary College Hospital is given just to show how a variety of cases is met within our daily practice and how important the role of a Veterinarian is in the correct diagnosis and proper treatment of sick animals and Part II deals with Gastro-Enteritis in dogs explaining the circumstances which prompted us to publish this paper.

PART I

A review of Canine cases in the Small Animal Clinic of the Madras Veterinary College Hospital during the first of 1958-59.

On an average 87 cases attended the Small Animal Clinic of the hospital every day. Though we got a good number of cats, birds, a few rabbits and other pets, the majority of cases were canines brought either for Surgical or Medical complaints.

* Read at the XIII, Madras State Veterinary Conference in August '59.

In order that this article might serve the intended purpose, we give a resume of the treatment given only to Alsation breed of dogs in our hospital.

On an analysis of the figures from the Small Animal Clinic, it is found that out of 5082 cases admitted during the first half year of 1957-58, 409 cases *i.e.* more than 8% were Alsation dogs. The disease-war details of these cases are given below just to show the varieties of clinical material available in the Small Animal Clinic of this hospital.

(1) Ancylostomiasis	... 63	(12) Fits	... 4
(2) Other worm infestations.	26	(13) Anaemia	... 4
(3) Eczema	... 40	(14) Ascites	... 3
(4) Pyrexia of unknown origin	... 25	(15) Others including under observation for rabies, A.R. treatment, Physiotherapy, etc.	... 95
(5) Indigestion	... 21	(16) Gastro-Enteritis other than verminous origin.	71
(6) Mange	... 16		
(7) Distemper	... 13		
(8) Epistaxis	... 10		
(9) Paraplegia	... 8		
(10) Respiratory disorders	... 6		
(11) Nephritis	... 4		
		Total No. of cases	... 409

The reasons for selecting this breed are that—

- (1) A majority of Alsation dogs brought to the Hospital suffered from gastro-intestinal disorders.
- (2) This breed of dog is most popular as watch dogs in the City of Madras.
- (3) The dogs of this particular breed are usually well cared for by owners in spite of which gastritis is met with more frequently in Alsations than in any other breed.
- (4) Most of the valuable police-dogs are of this breed and
- (5) a thorough investigation of the gastro-intestinal complaints was made by the authors in the Police Kennels.

The routine followed in handling some of these cases is briefly described below:

1. *Ancylostomiasis*:—Though we are aware of the fact that nearly 90% of dogs in the City harbour these worms, it is only the intensity of infection, the opportunity for reinfection and the degree of pathogenesis that determine the seriousness of the condition in a given case.

We know that a single worm sucks 0.8 cc. of blood in 24 hours and a good percentage of haemoglobin is lost daily in faeces. The

secondary infection in the breach caused by the worms and the resulting anaemia are of prognostic significance. We have had cases (case Nos. 4247, 3949, 3947, 3962, 5317 and 6267) where the R.B.C. counts were found to be 2 millions or less per c.m.m. against a normal range of 5 to 6 millions per c.m.m. Such cases required a course of iron and liver extract, vit. B 12, Polvion, Rubramin, folic acid, etc. and in two cases even blood-transfusion before they were fit for worm treatment. In other cases, a course of calcium salts was given. This was followed on the next day by Tetrachlorethylene in capsules (0.1 c.c. for every pound of body weight). An hour later, an aperient was administered. As a routine, a dose of carminative mixture was administered on the next day followed by calcium lactas or Calcium Sandoz for about a week. The owners are always advised to have their dogs tested again for worms in 3-4 weeks' time and have the treatment repeated if necessary.

2. *Other worm infections*:—(a) *Ascariasis*: Puppies were most affected. They responded well with the combined worm mixtures. In some cases a course of Hetrazan 6-10 mgm. per K.gm. body weight 3 times a day for 7 days was found very effective.

(b) *Taeniasis*:—Ordinary worm mixtures containing Extr. filicis, Ol. terebinthinae and Pulv. Areca, etc. only helped in removing the mature segments but not the entire worm with the scolex. Oral administration of Arecoline hydrobromide (1/8th to 1/4th gr. in syrup) produced a dramatic therapeutic effect in that the worms were expelled in 15-20 minutes. There are instances where more than 100 worms with their scolices intact being expelled in one treatment. "Nemural" and "Dicestal" were useful in cases where Arecoline hydrobromide could not be used.

3. *Eczema*:—Cases of nonspecific dermatitis responded to proper management such as judicious feeding, regular brushing, proper exercise and hygienic housing. Non-specific protein therapy (Siolon, Sterile milk) and liver extract injections have also proved useful. External application of 'Caladryl' was found to be beneficial especially in allaying irritation.

4. *Mange*:—Sarcoptic mange and demodectic mange were not rare. The former responded well to external application of a dressing containing sulphur and ol. picis along with the internal administration of Liquor Arsenicalis as a skin tonic. External application of "Odylen" "Ascabiol" and "Tetmosal" have also been tried. Subcutaneous injections of "Aricyl" 1% have also been frequently used. Demodectic mange has not responded satisfactorily to the usual line of treatment. Local application of 5% gammexane ointment and a course of arsenical injections have given satisfactory results in cases where the lesions were

localised. A course of 6 injections of 1% Trypan blue intravenously 5-10 c.c. on alternate days was also found useful in those cases where the lesions were localised. When extensive areas were affected there was no satisfactory cure.

Distemper:—The availability of an effective vaccine has considerably reduced the incidence of this disease in recent years. Such of those unprotected cases that were brought to the hospital invariably during the stage of secondary complication could not be treated effectively especially those having choreic complications.

5. *Pyrexia of unknown origin*:—Repeated microscopical examination of blood from these cases proved negative for protozoan infection. A.P.C. powders were given to start with. Mere symptomatic treatment, preceded by an enema, with regulated diet brought down the temperature in most cases. In persistent cases, intravenous injections of 33% soln. of Sulphamezathine sodium (3 c.c. per 10 lb. body weight) daily for 3 days and in protracted cases Terramycin intravenously gave good results where other common antibiotics failed to respond.

6. *Epistaxis*:—It is found that some dogs have hereditary predisposition to this condition and any attempt to arrest the haemorrhage has not been successful. In other cases, mere local application of ice, injections of calcium gluconate or Calcium Sandoz, 1% congo-red and Coagulin-ciba and orally Kapilin are the drugs commonly tried to control haemorrhage in these cases.

PART II

Introduction

Gastritis in the Dog:—We have known by experience that dogs are more frequently the subjects of gastric inflammation than any other of the domesticated animals, in spite of the fact, that dogs can more easily get relieved of any irritant materials from their stomachs. This is perhaps due partly to their greedy feeding propensities and indiscriminate swallowing of food substances which might contain chemical and other irritant poisons, not to speak of putrefactive materials. Bacterial infection and presence of foreign bodies in the alimentary tract may also be contributory factors in some cases. Allergic factors also play a part in gastritis. Another reason for the frequency is the fact that gastritis in the dog is often specific in character, being either primary or met with in the course of such affections as distemper and canine typhus. Helminthic infection may also cause gastritis especially in puppies. Two forms of gastritis are usually met with in dogs viz., subacute gastritis and acute gastritis.

Sub-acute gastritis :—The symptoms and treatment of sub-acute gastritis are almost the same as for gastric indigestion but the chief danger from this condition is that it may all of a sudden assume the characters of acute gastritis and end fatally.

Acute gastritis :—The serious nature of acute gastritis cannot be over estimated owing to the very rapid course which it may assume, not infrequently proving fatal within twenty four hours of the onset of symptoms.

Gastro-Enteritis :—Whether it is sub-acute or acute the most serious feature about gastritis is that, if not diagnosed and treated in time the inflammation may extend to other parts of the alimentary canal giving rise to Enteritis.

Causes :—The causes of gastro-enteritis are many, but the most common cause is an irritant of some kind, though, at times, it may be specific in nature and may occur as a complication of specific diseases like distemper.

Improper food, irregular feeding habits, adulterated and spoilt food, the presence of foreign bodies such as nails, wires, hair, sand, husk, etc., some food irritants or some bacterial infection may be the other causes. Allergic factors cannot be ignored altogether.

Worms are also responsible to some extent especially in young stock. It is seen in Table III that 18 out of 59 (31%) cases of gastritis were met with in young puppies below 3 months and the incidence in the age group of 1—6 months was as high as 44% which shows that worm infection and indiscriminate feeding are the causes of gastro-intestinal disorders which are rare in adult animals older than 2 years.

With this knowledge of gastro-enteritis it is expected that any clinician should be able to diagnose cases of gastro-enteritis and treat them effectively.

In the review of cases given in Part I of this paper, it is seen that as many as 71 cases of gastro-enteritis were treated in this hospital (Vide Table I). Though a good majority of cases responded well to our line of treatment most of the dogs ("Dora", "Chesty" and "Lygia") belonging to the Madras Police Squad did not respond to our treatment in spite of personal attention and care.

Most of these police dogs showed similar symptoms and somewhat responded to our treatment but to give them a permanent cure was a Herculean task in spite of the best treatment given. One of the valuable trained dogs succumbed to the disease and even those that recovered, came back with similar symptoms when normal diet was resumed.

The common symptoms noticed and the line of treatment adopted by us are given below for the information of the readers.

Common symptoms :—Vomiting, diarrhoea or loose motions mixed with blood and mucous shreds, dull and off-feed, m.m.pale, slight rise of temperature in early stage but weak imperceptible pulse and subnormal temperature at later stages and even collapse in certain cases.

Line of treatment :—Vomiting was controlled by chloretone and other gastric sedatives such as Bismuth subnitrate, and triple carbs to relieve irritability of the stomach. Chlorodyne has also been used. Gastric disinfectants such as quinine, chinol, Permanganate of K or Na, boric acid and Salicylic acid proved useful.

Urine, blood and faeces were examined microscopically. The blood picture was usually anaemic, urine was normal but the faeces examination revealed stray ova, in a few cases.

Controlled feeding was strictly enforced. Small quantities of albumen water and barley water have proved beneficial. Milk and white of egg, Milk and lime water, Sago and arrow root congee have also been tried.

In cases with temperature, antipyretics were tried. In cases of subnormal temperature, 5% glucose saline was administered. In one case even blood transfusion was tried. A. P. C. powders, sulphamezathine, strepto-penicillin, crystapen, chlor-strep. suspension, sulphathiazole, Berin and Cremosuxidine have also been used according to necessity. In particular cases, Radiographs of stomach and intestines were taken to detect the presence of foreign body, neoplasm, or obstruction, if any.

The exact cause of this kind of gastro-enteritis had to be investigated as delay in diagnosis interfered with training and usefulness of police dogs. All clinical and Laboratory trials proved futile. The peculiar symptoms evinced by the police dogs and the way the symptoms recurred on the cessation of treatment and on revival of the normal diet, made us suspect that there must be some other factor common to Police dogs. This naturally meant that there should be some factor in the daily routine of the dogs either in their housing, feeding training or care and management.

The police kennels were inspected by us all of a sudden without any previous intimation, of course in company with the Commissioner of Police.

The dogs were kept in modern kennels constructed in consultation with us. The kennels were very clean and neat but a strong disinfectant was smelt. When questioned, it was brought to our notice that

strong solutions of "Phenyle" was used to disinfect the kennels. Further enquiry showed that as much as 8-10 oz. of strong phenyle was mixed with about 2 gallons of water and poured in the kennels early in the mornings. As the dogs were given their last drink only at 5 p.m. daily and no other liquid was made available to them till the next day, as per their daily routine these thirsty dogs appear to have licked this strong phenyle lotion and dried the floors and drains which is perhaps the main reason for this form of severe gastro-enteritis.

On further examining the surroundings it was noticed, that the very adjacent building within the same compound was a human hospital whose waste materials such as cotton, lint, gauze etc., soaked in antiseptics like iodoform, acriflavin, Triiodine, Hydrargyrum per chloride, etc. mixed with pus and blood, at times, were accessible to the dogs. It is probable that some of these materials were swallowed by these dogs and acted as irritant poisons. This probability was confirmed by the recovery of cotton wool along with faeces in a case where an enema was given.

The drains all along the kennels and human hospital contained a strong solution of phenyle and the drains being open, it is presumed that these thirsty dogs during their exercise, being let loose, might have drunk this poisonous fluid.

On further examining the compound where these dogs are trained and exercised, it was noticed that trimmings of photographic films and prints were seen scattered on the floor, having flown down from upstairs where the artist and photographer worked. It is possible that the photographic materials also might have been swallowed accidentally by these dogs. On further going round the compound, it was seen that a hedge of *Thevetia nerrifolia* was maintained by regular pruning and clipping which is perhaps another remote toxic factor. The articles of food in the kitchen, cooking utensils and the grooming kit, etc. were also inspected but they were found to be satisfactory.

A summary of these findings made us infer that the symptoms might be due to the following factors.

- (1) Drinking of a strong solution of phenyle which was used as a disinfectant in the Kennels and drains.
- (2) Swallowing of hospital wastes containing infective pus and blood and toxic antiseptics.
- (3) Probable ingestion of the prunings and clippings of the toxic plant *Thevetia nerrifolia* and photographic materials containing poisonous chemicals like cyanide.

The Commissioner took a personal interest in the matter and issued on-the-spot-instructions to the staff in-charge to carry out our following suggestions:—

- (1) To stop disinfecting the kennel with any kind of lotion, but to sweep it clean and wash with plain water.
- (2) To stop using strong disinfectant in open drains.
- (3) To collect all waste materials from the hospital in a bin and bury them, if not burn them.
- (4) Not to throw the photographic clippings on the floor, and
- (5) To replace the *Thevetia* hedge with *Bougainville* as early as possible.

This happened on 12—2—1959.

The two cases that were under treatment on this date showed gradual improvement and one recovered completely as there was no chance for further access to irritants. One case, by name "Dora" improved considerably but could not stand the normal diet. Her blood picture was highly anaemic and she was not fit for training. On the request of the Commissioner she was ordered to be auctioned off.

But from that date to this day there has not been a single case of gastritis or enteritis among the Police Dogs which confirms our suspicion that the complaint was not due to any systemic or specific disease but due to ingestion of irritant materials that were made available to those dogs accidentally. With the proper care and management combined with regular feeding and controlled exercise, the problematic gastro-enteritis has disappeared from the police Kennels. But for the visit to the dog kennels and a joint inspection of the premises the actual cause of the complaint would have remained unknown for long and taken a heavy toll of many a precious dog. It is therefore essential that not only a routine examination of the patient is desirable in all cases but a systematic approach to each problem is also of great help to a clinician and that if one adopts a routine form of clinical examination of the patient he is often able to pick up signs which would be missed were he to concentrate only on the organ or part of the body which one feels from the owner's history to be the one involved.

It is therefore needless to say that if our professional brethren take a lively interest in getting to know the exact cause of the complaints it is possible that most of the so called obscure diseases can be diagnosed promptly and cured effectively. Proper care and manage-

ment of pet animals will undoubtedly prevent many a complication and proper diagnosis and timely treatment will prevent great losses.

TABLE I
Monthwar details of Gastritis, Enteritis or Gastro-enteritis treated in the small animal clinic of the Madras Veterinary Hospital during April-September 1958.

April	May	June	July	August	Septem-ber	Remarks
Case Numbers :						
<u>400, 408,</u>	1191	2186	2849	3581	4403	Cases under- lined are of Alsatian breed
<u>822, 928</u>	1251	2231	2862	3685	4485	
<u>and 1069</u>	1257	2273	2962	3700	4453	
	1406	2348	3203	3767	4539	
	1444	2436	3268	3798	4730	
	1447	2547	3417	3799	4769	
	1475	2549	3427	3806	4783	
	1541	2627	3499	3807	4795	
	1555	2657		3809	4998	
	1581	2667		3927	5029	
	1613	2752		3992		
	1628			3993		
	1662			4082		
	1683			4089		
	1818			4094		
	1883			4226		
	1906			4231		
	1917			4247		
				4295		
Total	5	18	11	8	19	71

Observations

- (1) From the number of cases treated during the first half year, it is seen that cases of gastritis are quite common during all months.
- (2) Out of 71 cases treated, 59 i.e., nearly 72% belonged to Alsatian Breed of Dogs. Analysis of these 59 cases are given in Table Nos. II and III.

TABLE II
Analysis of cases of Alsatian dogs treated for gastritis, enteritis or gastro-enteritis in the Small Animal Clinic of the Madras Veterinary College Hospital during the first half 1958-1959.

S. No.	Case No.	Date of		Age	Admitted for	Result
		Admission	Discharge			
1	400	12-4-58		4 years	Gastro enteritis	Discontinued
2	408	12-4-58		12 months	Gastritis	"
3	822	22-4-58	16- 5-58	8 months	Gastro enteritis	"
4	928	25-4-58	29- 4-58	6 years	Gastritis	"
5	1069	30-4-58	1- 5-58	1 month	Gastritis	"
6	1251	7-5-58	9- 5-58	12 months	Gastritis	"
7	1406	13-5-58	17- 5-58	2 months	Enteritis	"
8	1444	14-5-58	15- 5-58	2 months	Enteritis	"
9	1447	14-5-58	15- 5-58	12 months	Gastro enteritis	Cured
10	1541	17-5-58	18- 5-58	2 months	Enteritis	Discontinued
11	1555	18-5-58	18- 5-58	2 months	Gastritis	"
12	1581	19-5-58	19- 5-58	7 months	Gastritis	"
13	1682	21-5-58	21- 5-58	2 months	Enteritis	"
14	1818	26-5-58	29- 5-58	3 months	Enteritis	"
15	1883	27-5-58	30- 5-58	6 years	Enteritis	Cured
16	1906	28-5-59	31- 5-58	3 months	Enteritis	Discontinued
17	1917	29-5-58	16- 6-58	18 months	Enteritis	"
18	2231	8-6-58	8- 6-58	6 months	Gastritis	"
19	2273	10-6-58	16- 6-58	3 months	Enteritis	Cured
20	2348	12-6-58	14- 6-58	3 months	Enteritis	Discontinued
21	2436	16-6-58	16- 6-58	3 months	Enteritis	"
22	2547	21-6-58	26- 6-59	18 months	Enteritis	"
23	2549	21-6-58	29- 6-58	4 months	Enteritis	"
24	2627	23-6-58	25- 6-58	4 years	Gastritis	"
25	2657	25-6-58	12- 7-58	12 months	Gastro enteritis	Cured
26	2667	25-6-58	30- 6-58	3 years	Gastritis	Cured
27	2752	29-6-58	1- 7-58	6 months	Gastritis	Discontinued
28	2849	3-7-58	7- 7-58	12 months	Gastro enteritis	"
29	2862	4-7-58	4- 7-58	2 years	Gastritis	"

CARCINOMA OF THE RUMEN IN A COW

By

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Carcinoma of the rumen has been reported in bovines by Trotter (1903), Murray (1908), Koek & Fourie (1928), Jackson (1936), Plowright (1955) and Wood *et al* (1957). Carcinoma of the bovine stomach mentioned by Sticker (1902) was considered to be probably from the rumen by Feldman (1932).

In view of the extreme rarity of ruminal carcinoma, a case observed at necropsy is reported.

Incidence:—A neoplasm was noticed in the rumen of a cow out of 500 bovines (including buffaloes) necropsied. The animal was an aged, crossbred cow and was much emaciated.

Gross appearance:—The neoplasm was in the form of a diffuse nodular, fragile, cauliflower-like growth on the mucous surface of the rumen (Fig. 1). It was 25 cms x 21 cms in extent and was situated on the anterolateral wall of the dorsal sac of the rumen, immediately below the rumino-reticular orifice. The nodular growths were confluent and large, about the size of an orange, except at the periphery where they were scattered and small, about the size of a pea. The growths projected into the cavity, sometimes as much as 6 cms, and were separated from one another by deep furrows which gave the mucous surface of the rumen an uneven appearance. The ruminal wall was considerably thickened from about 1 to 7 cms. The growths were bare, devoid of ruminal papillae and surface ulceration was not evident.

Microscopic appearance:—The surface of the neoplasm was devoid of ruminal papillae except for a stray one here and there and was denuded of the lining stratified squamous epithelium (Fig. 2). The histologic picture was that of a squamous cell-carcinoma. The neoplastic cells were arranged either in the form of infiltrating columns or in a concentric fashion. The cells were well-differentiated and showed central keratinization which gave the characteristic 'pearl-like' appearance. The connective tissue stroma between the columns of epithelial cells was scanty in the superficial layers and abundant in the deeper layers. The submucous connective tissue was considerably increased. The neoplastic cells infiltrated extensively into the submucous connective tissue, slightly into the muscular coat and did not involve the serous coat. Massive lymphocytic infiltration was seen

around the infiltrating columns of neoplastic cells here and there. Mitoses were infrequent.

Comment

Joest (*cit.* Koek & Fourie, 1928) recognised two forms of ruminal carcinoma in bovines—scirrhous cancer in which ulceration is a marked feature and the other is in the form of a cauliflower-like growth. The neoplasm observed resembled the latter variety. Intra-mural extension of the neoplasm from the mucous to the serous surface and metastases to adjacent organs and regional lymph nodes have been commonly noticed in ruminal carcinoma of cattle. Except for the partial involvement of the muscular coat, these features were not seen in the neoplasm observed. The neoplasm appears to be of low grade malignancy as indicated by the infrequency of mitoses and lack of de-differentiation. The endemic occurrence of ruminal carcinoma in cattle reported by Plowright (1955) in Kenya is of interest as similar observations have not been made elsewhere.

Summary

A case of squamous-cell carcinoma of the rumen in a cow is reported.

Acknowledgment

My sincere thanks are due to Sri I. D. Mantramurti, Principal, Madras Veterinary College for facilities afforded, to Sri D. Pattabiraman, Director of Animal Husbandry, Madras for permission to publish the article and to Sri M. R. Jambulingam for the photograph and photomicrograph.

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AN UNUSUAL LOCATION OF A CAPILLARID WORM IN THE DOMESTIC FOWL

By

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Introduction

In view of the disease produced and heavy mortality caused by capillarid worms in birds in general and domestic fowl in particular, a case of capillariasis in an unusual site, the larynx of a domestic fowl, has been recorded and its pathology studied.

According to the available literature, as summarised by Lapage (1956), *C. longicollis* (Mehlis 1831), *C. columbae* (Rudolphi 1819), *C. obsignate* (Madsen 1945) and *C. retusa* (Railliet 1893), occur in the intestine of fowls, while *Capillaris annulata* (Robin 1858) and *C. contorta* (Creplin 1839) occur in the crop and oesophagus of fowls. In India, Mudaliar and Alwar (1947), Ramanujachari and Alwar (1954) recorded *C. annulata* from the crop of the domestic fowl, and a capillaria sps. from the caecum of an Australian Pheasant of the Madras Zoo, respectively. The location of the capillarid worm in the larynx of a fowl is not mentioned by any worker.

Case History:—Complete cranial larynx, together with a piece of trachea from a R.I.R. hen was received on 10th February 1958, from the Veterinary Assistant Surgeon, Veterinary Dispensary, Polavaram, West Godavari District. The history provided by the Veterinary Assistant Surgeon was that "the fowl was very weak, debilitated and reduced in weight". On post-mortem Examination, the cranial larynx contained a growth, which had partly occluded the passage.

Pathology:—Cross examination of the laryngeal mucosa showed a few slightly elevated nodules, comparatively hard to the touch and partly occluding the laryngeal passage. The tracheal mucosa was however devoid of any gross pathological change.

The histological examination of the laryngeal section showed a great thickening of the mucosa, in which were found numerous capillarids together with their characteristic two plugged eggs causing considerable tissue destruction. The thickened mucosa with the parasites was responsible for the partial obstruction of the laryngeal cavity. The neighbouring mucosa revealed well-marked lymphoid cell reaction. (Photo-micrograph I).

Identification of the parasite to determine the species was not possible, because of lack of entire material.

Summary

(1) A case of an unusual site for a capillarid worm in the trachea of a fowl has been reported.

(2) The capillarid infection of the larynx is responsible for a partial obstruction of the laryngeal cavity resulting in difficult respiration.

(3) The capillarid infection is associated with a well-marked destruction of the laryngeal mucosa.

Acknowledgments

Our grateful thanks are due to Dr. K. Govinda Sastry, Principal, Andhra Veterinary College, for his encouragement in the preparation of this note. Our thanks are also due to the then Veterinary Assistant Surgeon I/c Veterinary Dispensary, Polavaram, who has collected the material.

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A STUDY ON THE NORMAL SPECIFIC GRAVITY OF BLOOD, SERUM AND PLASMA OF THE CAMEL

By

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Introduction

The clinical examination of an animal's blood by estimation of the specific gravity of whole blood, serum and plasma is of definite value in revealing useful information. The method of determination of specific gravity is specially of value because it is very quick and easy as compared to other tests done on the blood, which are very time consuming and impracticable under field conditions.

For interpreting the results obtained from diseased animals, the knowledge of normal values in healthy animals is essential. As the information on this score is lacking in the available veterinary literature on the camel, the present work was undertaken to evolve 'NORMAL' of the specific gravity of whole blood, plasma and serum, for this species.

Review of Literature

Figures (average or range) of the Specific gravity of whole blood of domestic animals as worked out by different authors is given in table No. 1, below.

TABLE I
Showing figures of the Specific gravity of whole blood of domestic animals given by various authors.

S. No.	Species	Authors			
		Albritton (1)	Malkums (5)	Breichart & Brown (6)	Wirth
1	Horse	1053	1051 to 1061 (Stallion)	1060	1052
2	Cattle	1052 (Cow)	1082 to 1043	1048 (Cow) 1061 (Bullock)	1052 (Cow)
3	Sheep	1051	1025 to 1046	1042	—
4	Pig	1046	—	1060	1060
5	Dog	1052	1047	1069	1058
6	Cat	1051	—	1054	1055

The specific gravity of blood-plasma of dairy cows averages 1026 (Turner & Herman) (8). The average specific gravity of serum as worked out by Wirth is 1027 for horse and cat, 1028 for cow, 1026 for dog and 1031 for swine (9). Values for plasma are usually about 0.002 lower than those of serum (7). The normal values of specific gravity of camel's blood, serum and plasma are not available in the literature consulted by the present writers.

Materials and Method

Fifty healthy adult male camels (*Camelus dromedarius*) were selected and the blood from each animal was collected from the jugular vein with a 14 gauze needle, into two clean test tubes. One tube was mixed with 1.34 percent sodium oxalate solution in proportion of 9 parts of blood to 1 part of solution. The second tube was kept at room temperature and blood allowed to coagulate. It was later decanted and centrifuged to obtain serum. Plasma was obtained by centrifuging a part of Oxalated blood. Specific gravity of Oxalated blood, serum and plasma was determined by copper sulphate solution method described by Hawk, Oser & Summerson (3). A syringe and needle were employed for pouring the blood drops into the solutions. The specific gravity of the series of standard copper sulphate solutions prepared ranged from 1.02 to 1.034 for plasma and serum and from 1.040 to 1.056 for whole blood, with a difference of 0.002 between every two consecutive solutions.

Results

The blood of camel is a viscus fluid slightly darker in colour than that of other domestic animals. Its specific gravity ranges from 1042 to 1055, the average being 1047.

The plasma is yellowish in colour and its specific gravity ranges from 1022 to 1028, the average being 1024.

The colour of serum is slightly lighter than that of plasma and its specific gravity ranges from 1022 to 1032, the average being 1026.

The mean difference between the specific gravity of serum and that of plasma was found to be 0.002.

Discussion

The average specific gravity of camel's blood is identical with the figure of 1047 for the dog given by Malkums and is very close to the figure of 1046 for the pig given by Albritton (1). It falls within the figures given by Reichart and Brown for cow and bullock (6).

The average specific gravity of camel's blood-plasma is quite close to the figure of 1026 for dairy cows given by Turner and Herman (8).

The figure of 1026, being the average specific gravity of camel's blood-serum is identical with that of dog and comes very close to the figure of 1027 for the same in horse and cat as given by Wirth (9).

Prospects for Research

The specific gravity of whole blood varies with red cell concentration, if the plasma proteins are within the normal limits. Thus the determination of specific gravity is indirectly a measure of haemoglobin concentration (2). A low specific gravity often denotes anaemia (4).

The specific gravity of plasma depends largely upon the plasma protein concentration (2). The assessment of the severity of anaemias or depression in the level of plasma proteins is of value in reaching prognosis in cases like haemorrhage and haemoglobinuria (2). The concurrent determination of specific gravity of whole blood and that of plasma enables the clinician to assess whether anaemia is due to excessive blood loss or to defective red cell formation, for in the latter case the specific gravity of plasma would be unchanged while in the former it would be lowered (2).

The specific gravity of both whole blood and plasma is enhanced in dehydrated patients whether caused by disease, excessive diarrhoea, profuse perspiration, severe affections of the kidney, vomiting, burns or the insufficient drinking of liquids (7, 5). It decreases in advanced anaemia and cachexia (5).

From the above it is clear that the determination of specific gravity of blood, plasma and serum can be put to use very advantageously in the diagnosis and prognosis of various pathological conditions. As no systematic work has so far been done on this aspect, in the camel, it appears to be a maiden field for prospective workers.

Summary

A study was conducted on the blood of 50 healthy adult male camels and the average specific gravity was found to be 1047 for the whole blood, 1024 for the plasma and 1026 for the serum.

Acknowledgments

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CORRECTIVE SURGERY FOR FAULTY EAR CARRIAGE IN DOGS

BY

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Among dog fanciers and breeders, the appearance, physical condition, genetic make-up, and breed performance are major factors in the selection of a dog to own. Ear-trimming and docking are two of the common cosmetic operations performed to satisfy the ideal breed appearance or description in dogs. Unfortunately, not all cases of ear-trimming in Boxers, Great Danes, and Doberman Pinchers are successful. Most cases of failure of the ear or ears to stand erect following ear-trimming are due to over age, inherent soft cartilage, poor surgical technique and after-care, injuries from scratching or rubbing by the dog, infection, and malnutrition.

A new method of corrective surgery for faulty ear carriage in dogs as described by Booth (1957) was followed with slight variations. Briefly, the technique of Booth (1957) is as follows:

Four one-inch equidistant incisions perpendicular to the break are made on the lateral (inside) side including the auricular cartilage, but not through the skin on the medial (hair) side of the ear or ears. Setons of umbilical tape are forced with the use of a pair of pointed forceps through the incisions behind the cartilage, and left for eight days to prevent rapid healing due to additional irritation and thus form more scar tissue. A special method of taping the ear or ears across the top

of the head, using a roll of two-inch gauze bandage covered with adhesive tape and a liquid adhesive, is recommended for ten days. After the removal of all tape, proper support of the ear or ears in the correct or desired position is advised from one to two weeks. This technique is both satisfactory for the ear or ears that drop forward along the side of the head, or tip backward over the skull after the trimmed ear or ears fail to stand.

The following three interesting cases are presented:

Case History

Case 1.—A male, 5½-month-old Doberman Pincher was ear-trimmed and docked on July 18, 1957. On July 26, eight days after trimming, a decision was made to perform corrective surgery on both ears, because the auricular cartilages were apparently soft and the breaks on the long axis of the ears were distinct. Three one-inch incisions on the lateral (inside) surfaces of both ears were done and both ears were taped. A strip of gauze as seton was placed through each incision and left *in situ* for four days to add irritation. On July 30, the dog was discharged, and the tape was changed when the dog returned on August 5. Two weeks of ear bandaging for support was carried out, and one month after the ear bandage was removed; both ears were found erect.

Case 2.—On July 24, 1957, a 6-month-old, male Doberman Pincher was ear-trimmed on both ears with poor results. Corrective surgery was performed on both ears on August 15, twenty-two days after ear-trimming. Three one-inch incisions were done on the right ear, and two one-inch incisions on the left ear, as the right ear was more affected. Strips of gauze as setons were placed through the incisions and left *in situ* for four days. This case was discharged on August 23, and the tape was changed when the dog returned on August 25. An ear bandage was applied and left in position for two weeks, and one month after the bandage was removed; both ears were erect.

Case 3.—A female, 5-month-old Boxer was ear-trimmed on August 13, 1957. Corrective surgery was performed on both ears on August 18, five days after trimming. Three one-inch incisions were done on the left ear and two one-inch incisions on the right ear. Strips of gauze as setons were placed through the incisions and left *in situ* for four days. This dog was discharged on August 28, and the tape was changed. An ear bandage was applied and left in position for two weeks, and five weeks after the bandage was removed; the ears were erect.

Discussion

Both the ears of the three cases presented after ear-trimming were abnormally carried, although not of the same degree. While the technique of Booth (1957) recommends the use of four one-inch equidistant incisions on the lateral (inside) surface of the ear or ears perpendicular to the ridge, fold, or break in the auricular cartilage, the writer performed three one-inch incisions on both ears of Case 1, three one-inch incisions on the right ear and two one-inch incisions on the left ear of Case 2, and three one-inch incisions on the left ear and two one-inch incisions on the right ear of Case 3. Instead of a special method of taping the ear or ears as described by Booth (1957), a three-fourth-inch wide adhesive tape was separately placed on the lateral (inside) surface at right angle to the long axis of the ear at its middle and tip joining the other ear. These tapes were reinforced at the opposite medial (hair) side of the ear or ears with the same width of adhesive tape. After the setons were all removed four days after application, the tape was changed on the tenth day. A new bandage for ear support, consisting of an aluminum plate No. 30 shaped to the desired form and length of the ears, gauze bandage roll, and an adhesive tape, as reported and described by Aranez (1958) was applied for two weeks and found satisfactory. The operated ears following corrective surgery were all erect four to five weeks after the ear bandage was removed.

Summary

1. Three cases, consisting of two Doberman Pinchers and one Boxer, are presented and discussed with faulty ear carriage after ear-trimming that responded satisfactorily to three or two equidistant one-inch incisions perpendicular to the ridge, fold, or break on the lateral (inside) surface including the auricular cartilage, but not through the skin on the medial (hair) surface of the ear.

2. A new bandage for ear support, devised by the author, was used with gratifying results.

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PRELIMINARY STUDIES ON COMPOSITION OF MILK OF INDIAN ELEPHANTS

By

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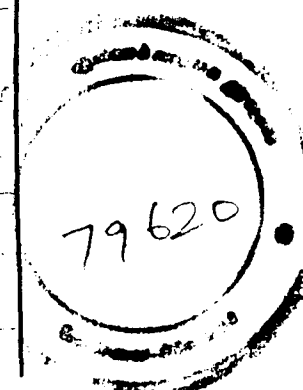
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Elephant, the biggest land mammal is receiving wide attention as a zoo animal. In India they are captured and used for work. The baby elephants are good attractions in circuses and they fetch fancy prices. The general belief is that the elephants as a rule do not breed well in captivity and calves born do not live for a normal length of time. According to Benedict (1936) Cow Elephant-Princess Alice of the Denver Zoological park had given birth to four babies and all died within an year and out of 16 elephant calves born in Europe and America only a few have survived for more than five years. But in Kerala among the Government owned elephants in Wynad and Nilambur (Calicut District) during the last seventy years there were more than 73 calvings recorded, out of which 37 were after 1950 showing a definite increase of calving among elephants in captivity in the area. There was a report of 11 calvings in captivity in one elephant. The deaths recorded are very insignificant probably due to the natural surroundings in which these animals are kept. If more attention is paid to the scientific feeding of the mother during lactation and of the young during the suckling period as well as after weaning, the rate of growth of the young and capacity for reproduction could be enhanced. Milk being an ideal Nature's food for the suckling, an understanding of the composition of milk is required, in order to arrive at a basis for calculating a ration for the young. No data regarding the analysis of milk of elephants in India is available. Benedict (1936) has quoted the result of analysis of one milk sample by Herman Harmis. Nicholls (1952) has also given data regarding the composition of Elephant's milk. He has not mentioned the source of his information.

Even though cows, buffaloes and goats are only developed as milch animals, the milk from mare, sheep, camel and lama are used by certain people as human food. The Elephant's milk is not known to have been used as part of human diet, probably due to non-availability. But Ayurvedic literature claims that it will increase the health and vigour of human beings. It is hoped that some observations on the Nutritional aspects of Elephant's milk will also be forthcoming.

TABLE I
Composition of milk samples analysed.

S. No.	Name of animal	Approximate age	No. of calvings after capture	Date of calving	Date of collection of milk	Sp. G. R. by Pycnometer	Total solids per cent	Total Ash	Fat %	Total Protein %	Casein %	Lactose %	Calcium oxide mgm./100 Gms.	Phosphate mgm./100 Gms.	Vitamin C mgm./100 Gms.	Chloride mgm./100 Gms.
1	Nargis	58	5	31-1-59	31-3-59	1.038	10.4	0.67	5.8	4.45	1.75	5.4	98.5	309	0.1	45
2	do.	58	5	31-1-59	30-5-59	1.035	19.15	0.63	8.5	4.65	1.6	5.25	95	245	0.4	52
3	Malli	33	3	11-4-59	7-6-59	1.035	17.5	0.57	7.5	4.4	2.1	4.9	178	186	0.25	42
4	Ranjitham	45	6	11-3-58	21-8-59	1.036	21.17	0.68	10.0	4.93	2.5	5.4	84.6	305	0.25	46
5	Sakunthala	?	3	10-1-58	29-6-59	1.032	22.34	0.8	12.0	5.1	2.2	4.3	93	245	0.3	48
6	Gajarani	42	2	1-11-57	19-4-59	1.023	28.02	0.67	18.5	5.4	1.4	3.4	165.2	216	0.4	64
7	Mukambi	31	2	24-12-57	29-6-59	1.024	28.55	0.64	19.0	5.25	2.0	3.6	164.6	244	0.3	54



Materials and Methods

Milk samples were collected and analysed from 6 Government elephants, and from one among them, a second sample was collected and analysed after an interval of 2 months. Formalin was used as preservative. The dates of calving, the probable age of the animals and the number of calvings in captivity were noted. The colour, consistency, taste and the reaction of the milk were observed. The specific gravity was determined by pycnometer. The estimation of total solids, ash, fat, casein, total protein, lactose, phosphates, calcium, chlorides, and vitamin C were made. Chlorides were estimated by direct titration method of Sanders and calcium oxide by a method described in Egpt. 35. in the text book of Dairy Chemistry (Edgar 1951), Casein by Hurt's Casein method, lactose by a micro-method following the method of Folin and Wu, Vitamin C by a modified Titrimic method of Bessey and proteins by Micro Kjeldhal Distillation and Titrimic method as given by Hawk 1954. Protein was calculated by multiplying the nitrogen value with 6.38 being special factor for milk as per Winton's (1958) calculation. Phosphate was estimated by Kilgore modification of Pimberton Molybdate volumetric method (Winton 1958). PH was determined by Merck's Universal Indicator pH paper.

Results and Discussions

All the samples examined were thin and watery, white, sweet and the pH was between 6 and 7. The composition of the milk samples is given in Table I. Benedict (1936) has stated that the samples of milk collected by Doremus were having the consistency of cream since the fat content in the samples was between 17.5 to 22.1%. But in the milk analysis cited by the same author the fat is only 3.89%. Nicholls (1951) has given fat percentage as 19.6. In this study the fat content varied from 5.8 to 19.0% and the fat percentage showed a sudden rise at weaning time, which is nearly at 1½ years. Samples collected by Doremus and Nicholls might be from elephants towards the end of lactation and the sample analysed by Herman Harmis may be from an animal in its early stage of lactation. The finding in this study is in agreement with the observations of Eckles (1953), who has stated that there will be normally a rise in fat as well as protein content in cows immediately before the end of lactation, but the sugar content will remain constant. There are other authors (Sen 1953) who have found that the fat percentage increases with advance in lactation. The second animal is giving slightly higher percentage of fat than the first though the stage of lactation is almost the same. In this connection we should remember that there are other factors like, age, conditions of the animal and the feed which affects the percentage of fat in milk. It is also found that the sugar content is seen decreasing with advance in

lactation. Evans (1910) (cited by Steel and Symonds) who found that the milk of the elephants contains more butter and sugar, less water as compared with other milks. But in this study sugar content is almost agreeing with that of Cow's and Buffalo's milk. The sugar content of the Elephant milk in the data given by Nicholls (1952) is higher. In this study the protein content is more while the fat, ash content and the total solids are less than the data of Nicholls. But the ash content and total solids in the data of Benedict is lower than the data in this analysis. Vitamin C content is only very little compared to other milks. This can be also due to destruction of Vitamin C which might have happened before arrival in the Laboratory after collection.

Summary

The values regarding some of the important constituents of milk of elephant are presented.

Acknowledgment

The writer acknowledges his indebtedness to Dr. Venkataramanayya, Inspector of Livestock for kindly helping to collect the milk samples. He wishes to thank the Principal, Dr. M. N. Menon, for giving encouragement and all facilities to do the work in the Laboratory and also for correcting the paper. He records his appreciation of the work of Sri T. N. Natarajan, Laboratory Assistant who has been helping in the preparation of reagents.

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Clinical Articles

CONGENITAL FUSION OF MANDIBLE AND MAXILLA IN A NEW BORN CALF

By

R. B. PATIL, B.Sc. (vet.)

Veterinary Officer, Jath, South Satara.

A Twelve-hour-old buffalo calf was brought to the Govt. Veterinary Dispensary, Jath on 9-5-59 with the following history.

The calf was born the previous night and was having all the physiological functions except that it was absolutely unable to open its mouth and the condition was like a lock-jaw. In the early morning it was fed with the colostrum with a baby feeding bottle through a small slit in the left commissure of the lips. The calf was otherwise quite lively and normal, but was not suckling the dam.

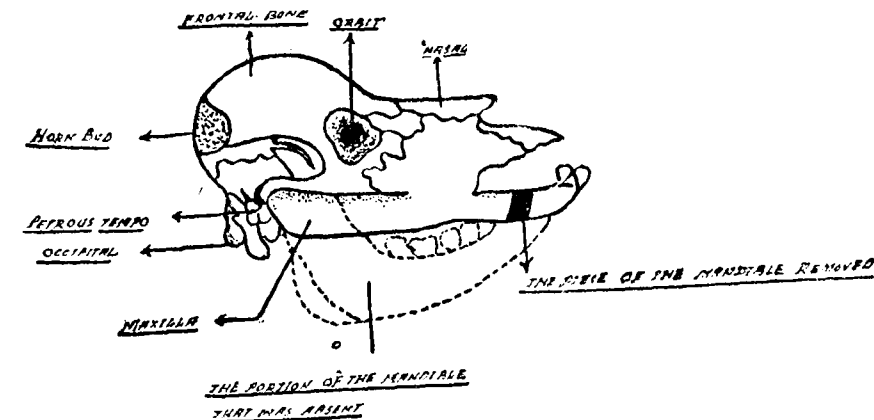
The calf was examined and the following were noted:—There was no movement of the jaws both upwards and downwards or even side ways. Manual force also failed to bring about movement of the jaws. The tip of the tongue was just protruding from the left commissure of lips and there was to and fro free movements for deglutition of liquids. There was also a small gap between the upper and lower molars on this side. But on the left side there were no molars and only the ridge of the maxillary bone was felt. The body of the mandible on the right side (the Horizontal ramus) was completely fused with the maxilla at the region of molars and beyond it was completely absent. Externally also one could see that deformed facial appearance due to absence of horizontal and vertical rami. The mandibular joint on this side could not be felt but on the left side it was normal.

On the right side of the face in front of the fusion with the maxilla and about $\frac{1}{2}$ " behind the commissures of lips a free piece of the horizontal ramus was felt.

The calf was kept under observation for two days and it was decided to operate and remove a piece of bone of right rami.

The animal was dosed with chloral hydras grs XXX Pulv. camphor grs X mixed freely with sugar water. The hairs on the part were clipped close, washed with Dettol lotion, dried and painted with Tr. Iodine.

A 2% solution of cocaine Hydrochloride 5 C.C. was given S/c round about the site of operation as local anaesthetic.



THE BUFFALO CALF A MONTH AFTER OPERATION

Procedure

A vertical incision 2" in length with a sterile scalpel cutting the complete portions of skin was taken just in front of the fusion. The cutaneous bleeding was mopped with the dettol soaked cotton plugs. Again a similar incision $\frac{1}{2}$ " behind the commissures $1\frac{1}{2}$ " in length was taken parallel to the previous one. A third horizontal incision over the mandible joining the two vertical cuts was taken. Thus the skin incision was of the figure 'H'.

The skin was dissected from subcutaneous tissue and fascia, it was flapped and the mandible was exposed. Care was taken to avoid the external maxillary artery and vein and the parotid duct.

A portion of $1\frac{1}{4}$ " in length of mandibular bone was cut by saw to about half of its thickness and the rest of its thickness was cut by scalpel to avoid injury to the surrounding tissues. The bone was thus totally removed, by blunt dissection; utmost care was taken to keep the mucous membrane lining the mouth intact and a complete success was achieved.

The movement of the jaw was free as in normal state. The calf started smacking its mouth. The tongue also moved freely.

The cut edges of the bones were smoothened by gentle rasping, the detached portion of fascia, blood clots and such other foreign bodies were cleaned off by Dettol plugs. The cavity was packed by Boric acid and the skin sutured by interrupted sutures. The line of sutures was painted with Tr. Benzoin Co., and a loose many tailed bandage was put on.

Post operative treatment

The calf was bottle fed. There was temperature rising to 109°F six hours after the operation on 12-5-59. It was given febrifuge mixture.

On 13-5-59 the temp. was 100°F. and it was feeding and looked alert. The operated wound was dressed by mopping with dettol plugs after pressing for effusion of inflammatory fluids.

On 14-5-59 the temp. was 104°F. The calf was dull but was feeding. It was administered febrifuge mixture and procaine penicillin 4 lacs I/M and repeated dressing.

On 15-5-59 there were symptoms of the previous day and hence the treatment was repeated.

On 16-5-59 temp. 102°F. there was much improvement. The treatment was repeated except penicillin injection.

The sutures were removed on 21-5-59. There was complete healing by first intention of the vertical cut towards commissures and

the portion of the horizontal cut. But there was gaping of the upper cut with discharge. This was treated as open wound. As there was pus formation etc. it was examined and found a piece of pointed spicule of bone. This was removed and dressing was continued. There was complete healing of the wound by 4-6-59 and hence treatment was discontinued.

AURAL BLOCK IN DOGS

By

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& P. C. SEN GUPTA.

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Introduction

Difficulties have often been experienced in aural surgery specially in aged dogs where general anaesthesia was not a very safe proposition. From the literature extant on the subject no relevant work on this line was available. The work was taken up with a view to find out a method of regional blocking by which surgical interference of the ear in dog can be taken up after mild sedation. In quiet dogs as well as smaller dogs where restraint was comparatively easy sedation was omitted.

Indications

Operation for haematoma and aural resection in aged dogs where general anaesthesia was contra-indicated; surgical interference of the ear in nervous dogs and dressing of ear in painful conditions.

Regional anatomy of the nerves supplying the external ear

1. "Auricularis posterior auricular nerve leaves the seventh cranial nerve under the parotid gland and divides into branches that follow those of the auricular artery.

2. Auricularis internus nerve—Also a branch of the seventh, the internal auricularis pierces the deep lateral part of the conchal cartilage in the interior of which it is distributed.

3. The auriculo palpebral nerve—Supplies the anterior part of the ear. The great auricular nerve from the second cervical is distributed over the lateral and posterior part of the ear; and occipital nerves from the first and second cervical pierce the long levator muscle close to its insertion into the scutular cartilage to spread out over the medial surface". (Bradley & Grahame)

4. "The superficial temporal branch of the mandibular (off Trigeminal) runs outward across pterygoideus lateralis, passes between the parotid gland and the neck of the ramus of the mandible, turns

around the latter, and divides into two branches. Before its division the nerve gives off twigs to the external ear". (Sission).

Technique

The dog was restrained in the usual manner and put on its side on the table with the affected ear on top. Sedation with "Largactil" was given in cases where it was necessary. A series of three injections were made. Two of 2 c.c. each and one of 3 c.c. with the local anaesthetic Planocaine (5% M & B). A 5 c.c. hypodermic syringe and one inch needle was used for all injections. The sites of injection were as follow :—

Blocking C₁:—The needle was directed, from the midline 1 c.m. below and lateral to the pole, at an angle of 45° and introduced just under the skin, 2 c.c. of local anaesthetic was injected.

Blocking C₂:—The needle was directed on the posterior edge of the mastoid process at an angle of 45° and introduced till the needle came in contact with the bone. Now, the needle was raised slightly and 2 c.c. of local anaesthetic was injected.

Blocking VIIth:—The needle was introduced in between the external angle (point) of atlas and vertical rami 2 c.m. deep and 3 c.c. of local anaesthetic injected. This injection also blocks the superficial temporal branch of the mandibular (Off Trigeminal).

Discussion

With a little skill and experience this block can be performed without much difficulty. When done correctly it gives an excellent result of surgical interference of ear in dogs. Indication of a correct block was that the ear drooped and there was absence of sensation in the whole of external ear. It took about 5 to 15 minutes for the effect of anaesthetic to take place in the whole of external ear. Drooping of the ear suggested motor paralysis and absence of sensation signifies sensory paralysis as well. The effect of paralysis both motor and sensory lasted for about an hour. It was the sensory which came back first.

Summary

1. Regional block of ear to facilitate surgical interference in aged and nervous dogs was tried with success.
2. A series of three injections with local anaesthetic 'Planocaine' were made in different parts on the base of the ear.
3. Premedication with 'Largactil' was given as a sedative in cases where it was deemed necessary.

Abstracts

Field trials of Diethylcarbamazine against lung worms in cattle.—By W. H. PARKER, H. E. ROBERTS, T. F. VALLEY and F. T. BROWN (1959) *Vet. Rec.*, 71:509.

Diethylcarbamazine citrate (Franocide—Burroughs Wellcome), the well-known anthelmintic was used in three field trials against husk of cattle. The experimental animals numbering 17, 15 and 28 respectively were aged 9-14 months. Treatment consisted of intramuscular injection of a 10 or 12% solution of the drug at the rate of 10 mg. per lb. body weight on three consecutive days. Increase in body weight, fall in larval count and subsidence of clinical symptoms were the results of the treatment.

V. S. ALWAR.

The influence of oestrogen and thyroid on the pituitary and blood content of FSH and LH.—By SIDKI, Y., H. M. BADAWI and F. A. SALIMAR (University of Cairo, Giza Egypt), 1958. *Experientia*-14(6): 209.

Oestrogen favours the sythesis of LH by the pituitary gland and thyroxine administration increases its rate of release. On the other hand, oestrogen and thyroxine hormones cause a decrease in FSH level in the blood and the pituitary.

B. PANDA.

The effect of desoxycorticosterone acetate on testes size and function in the cockerel.—By NORMAN F. BOAS, 1958. *Endocrinol* 63(3): 323.

After admistering desoxcorticoesterne (DCA), to the baby chicks, the author found the striking enlargement of the testes. Histological examination revealed that the enlargement of the testes was due primarily to distension of the seminiferous tubules by intraluminal fluid. In terms of comb weight DCA was weakly androgenic in small doses, and in large dosages, it inhibited the comb growth. The latter effect probably resulted from interference with endogenous androgen production.

B. PANDA.

Thyroid gland acts "thermostast" in protecting chicks against destructive effects of High temperature.—By M. H. CORNER, HENRY MENGE and HAJIMA OTA, *Agricultural Research*, 1958.

Chicks with large thyroids tolerated high temperature better than those with small thyroids. New Hampshire chicken specially bred for large thyroids did not lose as much weight or die in such large numbers, suggesting the thyroid's role in protecting chicks against high temperature.

Chicks with small thyroid did not do well during tests as those with large thyroids. Small thyroid chicks weighed less after exposure to a constant temperature of 95° F, than large thyroid chicks, while by exposure to 100° F, the small thyroid birds had a higher mortality rate (more than 33 per cent.). Surviving small thyroid chicks had smaller body weight and much adrenal enlargement. Adrenal weight of large thyroid chicks did not change.

This study points to the role of endocrine gland of fowls *vis a vis* environmental conditions.

B. PANDA.

Some hormonal influence on the Acetylation of Sulphanilamide *in vivo*, 1958.—By A. F. FISHKIN and F. LATA. *Endocrinol* 63: 162.

Androgens increase acetylation of Sulphanilamide *in vivo* while estrogens decrease the same. The authors have found that the immature rats of both sexes acetylated Sulphanilamide to the same extent. Early castration of males or estrogen injections into the males reduced the extent of acetylation. Ovariectomy had no effect, whereas hypophysectomy lowered markedly the extent of acetylation by both males and females. Sulphanilamide was found to have a markedly greater specific activity in males than in females; the specific activity was also greater in normal males than in hypophysectomized males. This sex difference in acetylation of Sulphanilamide and its control by sex hormones and an intact pituitary might be a reflection of the hormonal control of other acetyl coenzyme-A dependent reactions.

B. PANDA.

Immunological notes.—*Vet. Med.* 54: XLIX.

Immunity to coccidiosis in chicks can be achieved through oral immunization and infection control. A liquid vaccine (Coccivac—Nutrena) has been evolved by Dr. S. A. Edgar, Professor and Poultry Pathologist at Alabama Polytechnic Institute. The vaccine contains live oocysts and a single dose is given in water to three day old chicks. A series of mild reactions leads to immunity. To protect the chicks against an attack during immunization due to exposure to outside infection or by vaccine itself, a coccidiostat (Trithiadol—Nutrena) is included in starter feed.

B. PANDA.

News and Views

University of Kerala:—We are happy to note that the young Veterinary College in Kerala, is marching fast to catch up with older institutions in our land! That is indeed a happy spirit and we most heartily welcome the following endowments announced by the University of Kerala:—

The Principal, Veterinary College, Trichur, (Kerala) has offered the following four endowments for the award of Gold Medals annually to candidates successful at the Bachelor's Degree Examination in Veterinary Science under the following conditions:

1. Sri T. V. Kochuvareed Gold Medal Endowment:—Rs. 2000/- Name of Donor Sri T. V. Kochuvareed—To a student who passes in all the University Examinations for the B.V.Sc., Degree at the first appearance and who secures the maximum number of marks in the Final B.V.Sc., Examination.

2. Dr. K. S. Nair Gold Medal Endowment:—Rs. 1,200/- Name of Donor—Students of the Kerala Veterinary College, Trichur.—To the student who passes the Whole Examination in the minimum period, securing the maximum aggregate marks in Animal Husbandry Part I, Part II and Part III, provided that a candidate who has secured less than 60% of the total marks for all the three Parts taken together is not eligible for the award.

3. The Inauguration Souvenir Medal Endowment:—Rs. 1000/- Donor—By contributions from the public. To the student who passes the whole examination in the II and III B.V.Sc., Examinations at the first appearance, securing the maximum aggregate marks in the subjects of Pathology, Bacteriology and Parasitology and securing not less than 60% of the aggregate marks for the subjects.

4. Sri M. O. Thomakutty Gold Medal Endowment:—Rs. 1,000/- Donor Sri M. O. Thomakutty. To the student who passes the whole examination at the first appearance securing not less than 60% of the aggregate marks in Physiology.

The Southern Regional Cattle Show, under the auspices of the All-India Cattle Show Committee, was held in Madras from the 24th to 30th September 1959. It was a great success. As many as thirteen breeds of cattle were represented. The total number of entries under cattle and buffaloes was 423 and under sheep and goats 65. Besides Rolling Cups, Shields and articles of utility presented, the total amount of cash prizes awarded was Rs. 8,450/- for cattle and buffaloes and Rs. 305/- for sheep and goats. There was a Southern Regional Poultry Show also and there were as many as 857 entries from all levels of society. The cash prize awarded amounted to Rs. 1,260/-.

Block Development Corner

[Articles under this section, should be more in the nature of simple 'talks' to rural folks and village level workers, on Animal Husbandry matters and not loaded with scientific terms and theories.]

MILK RECORDING WORK IN DENMARK

By

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Superintendent, Live Stock Research Station,
Hosur Cattle Farm.

The organised recording of yields of Dairy Cattle began in Denmark in the last decade of the previous Century. The first local society started to work in 1895 and the figures given below show the development that has taken place.

Year	Societies	Herds	Cows	Percentage of Cows recorded	Average yield per cow		
					milk kg.	Fat %	Butter fat kg.
1903-04	280	6600	111900	10.8	3107	3.4	106.
1913-14	587	12757	208018	15.9	3256	3.5	115.
1924-25	101.	27689	431901	31.0	3399	3.7	126.
1937-38	1700	59291	734117	46.0	3813	3.9	150.
1948-49	1730	70106	754882	49.2	3708	4.0	151.
1954-55	1794	78395	869495	58.7	3808	4.2	164.
1956-57	1789	79591	868393	60.0	4038	4.3	175.

Organisation

The Milk and Butter fat recording in Denmark is carried out in local societies. Each society is an independent Unit managed by a Committee elected by its own members. The Committee is responsible for the day to day work and employs the milk recorder.

The recording Societies are joined in five Provincial Associations, — one each for Jutland, Funen, Zealand and Lolland Falster and Bornholm. Each Provincial Association has its own Management and works independently, although in accordance with common rules laid down by the National Committee of Danish Milk Recording Societies. The latter is formed by representatives of the five Provincial Associations.

Milk Recorders

The recording is performed by official Milk Recorders trained in Schools for at least 3 months in accordance with special regulations and an examination must be passed before going into practice.

The Recording work

The Recorder visits the Members at least 13 times a year. He stays with the herd for 24 hours so that the results ascertained by the recording represent a day's yield of each individual herd recorded. All cows in the herd must be controlled. During his visits the Recorder undertakes the weighing and sampling of the Milk of the individual cows, the determination of the Fat content, the necessary breeding control, such as noting the dates of calvings and matings since last visit, the sex of the calves born, ear markings of the new calves and the recording of his findings.

The recorder also assists in the planning of feeding and the allocation of fodder in proportion to the yield and fat content recorded for each cow at the trial milking. The yield is measured in Kilogrammes by means of a steel yard scale in units of not more than 100 grammes and the samples of milk for determination of fat content are taken in proportion to the milk ascertained by the weighment, by means of an automatic control pail designed specially for that purpose. The fat content is determined by Gerber method.

Calculations

1. *The operational year method* :—This method is used in Scandinavia, Germany and Austria and is carried out as follows :—

Control begins at any given date (October 1st in Denmark) and ends the following year on the date preceding the initial date (30th September in Denmark). For the sake of comparison, the yield of the first year of the cow is also calculated for 304 days from the 1st calving.

For each period a separate calculation is made of the quantity of milk and butter fat produced by multiplying the results of the weighings of the test day by the number of days in the corresponding interval, the test day being considered as the average day of this interval. The additions of the partial results obtained by this method gives the total production of Milk and Butter fat at the end of the year. The average percentage of fat content is obtained by dividing the total quantity of the Butter fat multiplied by 100 by the total quantity of milk.

The average yield of the herd for the year is calculated by the following method :—

I. Number of Cows for the year is calculated by dividing the total number of feeding days of the herd by the number of days of the year (365 or 366).

II. The total sum of milk and butter fat produced by the herd for the year divided by the number of Cows for the year gives the average yield per cow. The average percentage of fat is calculated as stated above. The total sums are used.

The Lactation Method :—This method is used in all European Countries and is carried out as detailed below :—

Control is exercised during the whole lactation period which begins on the day after calving and is considered ended when the cow is no longer milked twice a day. The final production is calculated in the same way as above mentioned for the operational year method but other methods are also generally used. *e.g.* the total quantity of milk and butter fat is obtained by multiplying the averages of milk — and butter fat weighings by the number of lactation days. The percentage of fat is obtained in the same way as mentioned above.

Special Danish Calculations

$$I. \text{ Butter} = \frac{\text{Total Milk} \times (\text{Percentage of Fat}) \div 0.15}{86}$$

II. Four Percent Corrected Milk =
Milk $\times$ 0.4 plus Fat $\times$ 15 is used when the fodder is allocated in proportion to yield.

Supervision and Publication

Through the organised supervision of the individual societies and Recorders, the provincial managements ensure that the yield and breeding records of each recorded herd are correctly and accurately kept. Each Provincial Association publishes an Annual Report on its activities, containing a list of all recorded herds and the yields obtained.

The European Agreement

The Milk and Butter fat recording in Denmark is in accordance with the European agreement on standardisation of Milk-Butter fat recording practices.

Correspondence

[The views and opinions expressed in correspondence are those of the writers themselves and are not always endorsed by the Editor.]

Sir,

Through the columns of your esteemed journal (I.V.J.) I would like to request the readers to inform me if they have any experience in the treatment of cats suffering from D.D.T. poisoning since I have not been able to cure any such case. These cases occur every year when D.D.T. is being sprayed in the town by the Public Health Department. The cats after showing symptoms of nervousness, shivering etc., die after about 4 to 8 days. Symptomatic treatment etc., does not help much. A Local lady Doctor, a Manager of Salt Works etc., have lost many pets in this way.

I think many Veterinarians might have come across such cases as D.D.T. spraying is a part of All India Malaria Eradication Programme.

H. B. MANBAD, B.V.Sc.,
Veterinary Officer,
I/C Veterinary Hospital, Mundra-Kutch.

Association News

The All-India Veterinary Association

THE RESERVE FUND

An event of great importance to the Veterinary profession in India, took place in August 1924. It was the birth of the *Indian Veterinary Journal*. Circumstances were positively hostile and yet the profession took that bold step and the lion-heartedness of the early pioneers cannot be too highly praised. Ever since then, the *I.V.J.* has toiled hard under very adverse circumstances. The *I.V.J.* lives to-day so that the profession could prosper and science advance.

And now the hat is sent round so as to place this journalistic venture on a sounder and firmer basis. The *I.V.J.* is a priceless possession of our profession. It has placed the Indian Veterinary Surgeon, on the map of the scientific world. Just pause and ponder over, how much we owe to the Journal both individually and collectively. Is it too much then to expect the profession to respond to the appeal issued for a Reserve Fund? We hope not.

Some enquiries have come to us asking us to indicate the extent of help expected. We do not want to put the members of the profession to any undue financial strain in these hard days. At the same time, a certain amount of sacrifice is needed to make this fund a great success,

so as to make it worthy of our profession. So we feel that the following scale of contribution will be quite reasonable. It could even be paid in two or three instalments.

Class I Officers	...	Rs. 100/- and above.
Class II Officers	...	Rs. 50/- and above.
All others	...	Rs. 25/- and above.

It is our ambition that no Veterinary Surgeon in this land should remain without contributing to this fund. Brick by brick, this great edifice of our's should begin to rise higher and higher. On the success or otherwise of this venture, the solidarity of our profession depends. "Pay and Prosper" is the slogan we pass on to the members of our profession.

Jai Hind!

T. VINAYAKA MUDALIAR,
Editor, *The Indian Veterinary Journal*.

THE I. V. J. RESERVE FUND

LIST OF CONTRIBUTORS

	Rs. nP.
Amount acknowledged in September 1959 issue ...	4,248 31
Dr. B. Panda, Maryland, U.S.A. \$ 5'00 ...	22 43
Dr. M. S. Das, Veterinary College, Calcutta ...	46 55
Total ...	Rs. 4,317 29

Cheques, money orders and all correspondence should be addressed to the Editor, *The Indian Veterinary Journal*, Madras-17.

The West Bengal Veterinary Association

THE FOURTEENTH ALL-INDIA VETERINARY CONFERENCE

The Fourteenth Session of the All-India Veterinary Conference is to be held in Calcutta this year from the 20th to 24th December 1959. The Sixth Reunion of the Bengal Veterinary College is also to be clubbed with this Conference. Several high power Committees have been constituted to be in charge of Publicity, Scientific Symposium, Finance, Publications, Excursions, Social Functions, Exhibitions, Medical Aid etc. The following scale of fees has been fixed:—

1. Membership of, Reception Committee—Rs. 25/- minimum.
2. Member Delegates from West Bengal—Donation Rs. 12/- minimum.

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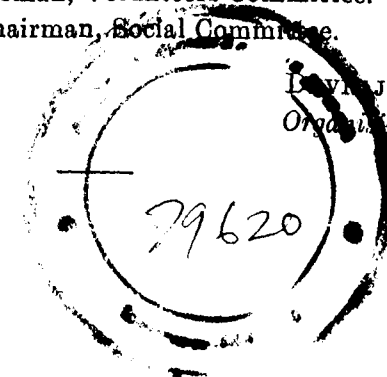
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